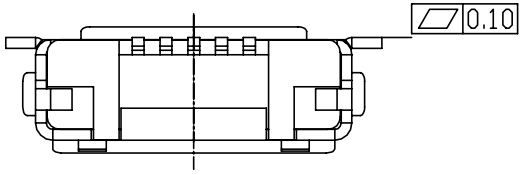
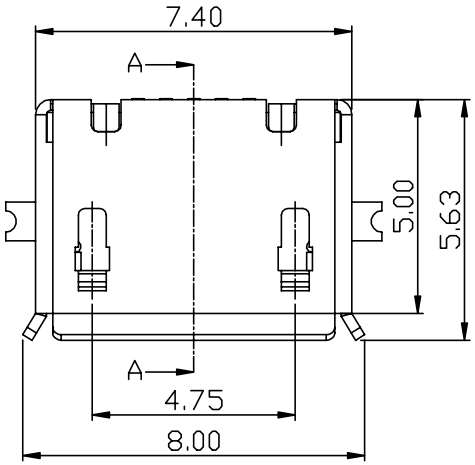
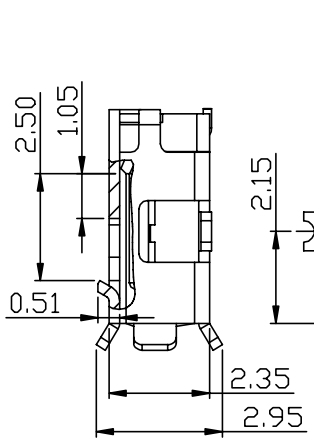
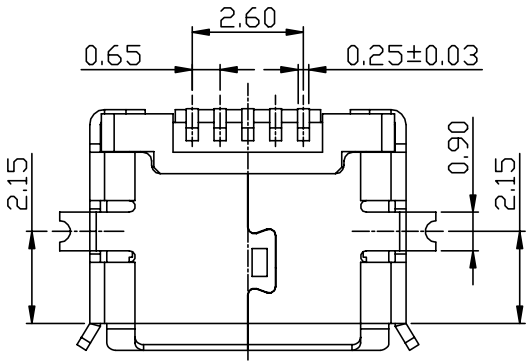
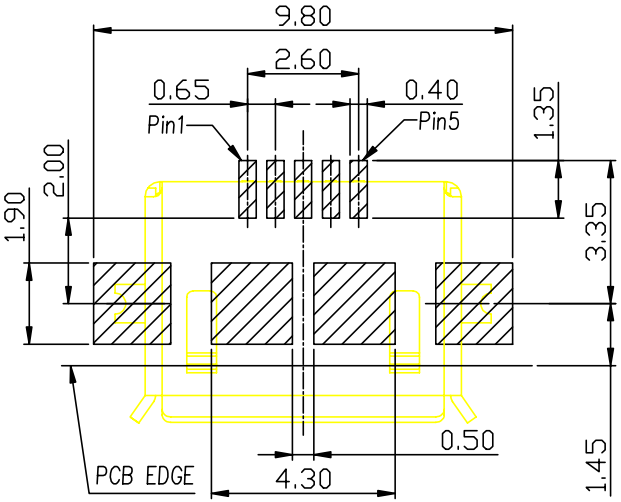
REV.	DESCRIPTION	DATE
–	RELEASE	



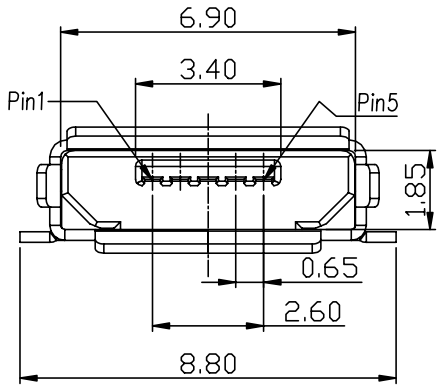


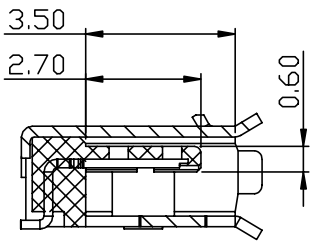






RECOMMANDED PCB LAYOUT





剖视图A－A

备注：
1.材质：
1.1胶芯：LCP UL94V-0
1.2端子：C2680R-H,镍底，镀金X¦M"
1.3外壳：C2680R-H，表面镀雾锡100¦M"或全金1¦M"
2.主要特性：
2.1额定电流：1A
2.2接触阻抗：30m¦E MAX
2.3绝缘阻抗：100M¦E MIN 250V DC
2.4耐压测试：250V AC
2.5沾锡性：温度245±5℃，时间5±0.5s
2.6退PIN力：0.5kgf MIN
2.7整体插入力：3.57kgf MAX　整体拔出力:1.00kgf MIN
2.8使用寿命：10000次
2.9耐温性:烤箱测试：温度260±10℃，时间2分钟
2.10工作温度：-30℃～+80℃
3.圆圈标记尺寸表示重点检验尺寸 ,CPK值不小于1.33

TOLERANCE .0=±0.25 [.010] .00=±0.15 [.006] .000=±0.05[.002] .0000=±. ANG.=±3°	DRAWER Joyo CHECK Jenge APP'D Devin	东莞市商旗电子有限公司
UNITS : mm [inch]	PRODUCT SPEC. —	MICRO USB 5PIN AB TYPE 母座(无柱)
		ST-USB-001E
SCALE NONE　SIZE A4	SHEET 1 OF 1　REV. –	

USB CONNECTOR

1.0 SCOPE

1.1 Content

This specification covers performance, test and quality requirements for USB Consortium plug and receptacle connectors.

1.2 Qualification

When tests are performed on the subject product line, procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2.0 APPLICABLE DOCUMENT

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

3.0 REQUIREMENTS

3.1. Design and Construction

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing.

3.2. Materials

A. Housing: Refer to respective sales & engineering drawings
B. Contact: Refer to respective sales & engineering drawings
C. Shell: Refer to respective sales & engineering drawings

3.3. Ratings

A. Operating temperature:
Standard Series:
-55℃ to +85℃
Mini Series & Micro Series:
-20°C to +85°C

B. Storage temperature:
Standard Series:
0℃ to +50℃
Mini Series & Micro Series:
-40°C to +85°C

C. Current Rating:
Standard Series:1.5 A
Mini & Micro Series: 1.0 A

D. Voltage Rating: 30 VAC (RMS.) Max.

3.4 Performance and Test Description

The product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1, Unless otherwise specified, all tests shall be performed in the room temperature.

3.5 Test Requirements and Procedures Summary (Figure1)

Test Description	Test Procedure	Performance Requirement
Examination of product	Meets requirements of product drawing and Specification	Visual inspection No physical damage

ELECTRICAL		
Test Description	**Test Procedure**	**Performance Requirement**
Low Level Contact Resistance	The object of this test is to detail a standard method to measure the electrical resistance across a pair of mated contacts such that the insulating films, if present, will not be broken or asperity melting will not occur(EIA-364-23)	30 (50 for mini-B connector) mΩ maximum when measured at 20mV maximum open circuit at 100mA. Mated test contacts must be in a connector housing.10 mΩ maximum change for post test LLCR 30mΩ for Standard & Micro USB
Insulation Resistance	The object of this test procedure is to detail a standard method to assess the insulation resistance of USB connectors. This test procedure is used to determine the resistance offered by the insulation materials and the various seals of a connector to a DC potential tending to produce a leakage of current through or on the surface of these members (EIA-364-21)	Pre test: Standard-1,000MΩ minimum Micro USB-1,000MΩ minimum Mini Series-100MΩ minimum Post test: 100MΩ minimum final
Dielectric Withstanding Voltage	The object of this test procedure is to detail a test method to prove that a USB connector can operate safely at its rated voltage and withstand momentary over-potentials due to switching, surges, and/or other similar phenomena(EIA-364-20)	The dielectric must withstand 500 (100 for mini-B & Micro USB connector) VAC for one minute at sea level
Contact Capacitance	The object of this test is to detail a standard method to determine the capacitance between conductive elements of a USB connector(EIA-364-30)	2pF maximum unmated per contact
MECHANICAL		
Contact Current Rating	The object of this test procedure is to detail a standard method to assess the current carrying capacity of mated USB connector contacts (EIA-364-70) — Method B	1.5(1 for mini-B & Micro USB connector) A at 250 V AC minimum when measured at an ambient temperature of 25 °C. With power applied to the contacts, the∆ T must not exceed +30°C at any point in the USB connector under test
Random Vibration	This test procedure is applicable to USB connectors that may, in service, be subjected to conditions involving vibration. Whether a USB connector has to function during vibration or merely to survive conditions of vibration should be clearly stated by the detailed product specification. In either case, the relevant specification should always prescribe the acceptable performance tolerances (EIA-364-28)Test Condition V Test Letter A	No discontinuities of 1 µs or longer duration when mated USB connectors are subjected to5.35 Gs RMS. 15 minutes in each of three mutually perpendicular planes

Test Description	Test Procedure	Performance Requirement
Physical Shock	The object of this test procedure is to detail a standard method to assess the ability of a USB connector to withstand specified severity of mechanical shock (EIA-364-27) Test Condition H	No discontinuities of 1 µs or longer duration when mated USB connectors are subjected to 11ms duration 30Gs half-sine shock pulses. Three shocks in each direction applied along three mutually perpendicular planes for a total of 18 shocks
Durability	The object of this test procedure is to detail a uniform test method for determining the effects caused by subjecting a USB connector to the conditioning action of insertion and extraction, simulating the expected life of the connectors. Durability cycling with a gauge is intended only to produce mechanical stress. Durability performed with mating components is intended to produce both mechanical and wear stress(EIA-364-09)	Standard Series:1,500 cycles Mini Series: 5,000 cycles Micro Series:10,000 cycles 10,000 cycles for ruggedized Standard “A” Cycle rate of 500 cycles per hour if done automatically and 200 if manual cycle
Insertion Force	The object of this test is to detail a standard method for determining the mechanical forces required for inserting a USB connector (EIA-364-13)	35Newtons maximum at a maximum rate of 12.5mm (0.492”) per minute.
Extraction Force	The object of this test is to detail a standard method for determining the mechanical forces required for extracting a USB Connector (EIA-364-13)	10 Newtons minimum at a maximum rate of 12.5 mm (0.492”) per minute. 3 Newtons minimum at a maximum rate of 12.5 mm (0.492”) per minute for Mini Series 8 Newtons minimum at a maximum rate of 12.5 mm (0.492”) per minute for Micro Series
ENVIRONMENTAL		
Thermal Shock	The object of this test is to determine the resistance of a USB connector to exposure at extremes of high and low temperatures and to the shock of alternate exposures to these extremes, simulating the worst case conditions for storage, transportation and application (EIA-364-32) Test Condition I	10 cycles –55 °C and +85 °C. The USB connectors under test must be mated There shall be no evidence of damage
Humidity Test	The object of this test procedure is to detail a standard test method for the evaluation of the properties of materials used in USB connectors as they are influenced by the effects of high humidity and heat (EIA-364-31) Test Condition A Method III	168 hours minimum (seven complete cycles). The USB connectors under test must be tested in accordance with EIA-364-31

Test Description	Test Procedure	Performance Requirement
Solderability	The object of this test procedure is to detail a uniform test method for determining USB connector solderability. The test procedure contained herein utilizes the solder dip technique. It is not intended to test or evaluate solder cup, solder eyelet, other hand-soldered type or SMT type terminations Solder temperature: 245±5℃ Dip time : 4~5sec (EIA-364-52)	USB contact solder tails must pass 95% coverage after one hour steam aging as specified in Category 2
Resistance to Soldering Heat	Solder temperature :260±5℃ Dip time : 10±1sec (EIA-364-56)	No physical damage shall occur
Temperature Life	Test Condition 3 Method A, Subject mated connectors to temperature life at 85℃ for 250hours (EIA-364-17)	Shall meet visual requirement, show no physical damage

3.6 PRODUCT QUALIFICATION AND REQUALIFICATION TEST SEQUENCE (Figure2)

Test or Examination	Test Group (c)				
	1	2	3	4	5
	Test Sequence (a)				
Examination of product	1,11	1,5	1,7	1,4	1,3
Low Level Contact Resistance	3,8	2,4			
Insulation Resistance			3		
Dielectric Withstanding Voltage			4		
Contact Capacitance			2		
Contact Current Rating				2	
Random Vibration	6				
Physical Shock	7				
Durability	5				
Insertion Force	2,10				
Extraction Force	4,9				
Thermal Shock			5		
Humidity			6		
Solderability				3	
Resistance to Soldering Heat					2
Temperature Life		3			

NOTE：(a) Numbers indicate sequence in which tests are performed.
(b) Precondition samples with 10 cycles durability.
(c) See para4.1.A.

4.0 QUALITY ASSURANCE PROVISIONS

4.1 Qualification testing

A. Sample Selection

Sample shall be prepared in accordance with applicable Instruction Sheets and shall be

selected at random form current production. Test groups 1, 2, 3 and 4 shall each consist of a minimum of 8 connectors. Test group 5 shall consist of a minimum of 8 printed circuit board receptacle connectors. A minimum of 30 contacts shall be selected and identified for each test group. Unless otherwise specified these contacts shall be used for all measurements.

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 2.

4.2 Requalification Testing

If changes is significantly affecting form fit or function are made to the product or manufacturing process, product assurance shall coordinate repualification testing consisting of all or part of the original testing sequence as determined by development product, quality and reliability engineering.

4.3 Acceptance

Acceptance is based on verification that the product meets requirements of Figure 1. Failures attributed to equipment test setup or operator deficiencies shall not disqualify the produce. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.4 Quality Conformance Inspection

Applicable quality inspection plan will specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

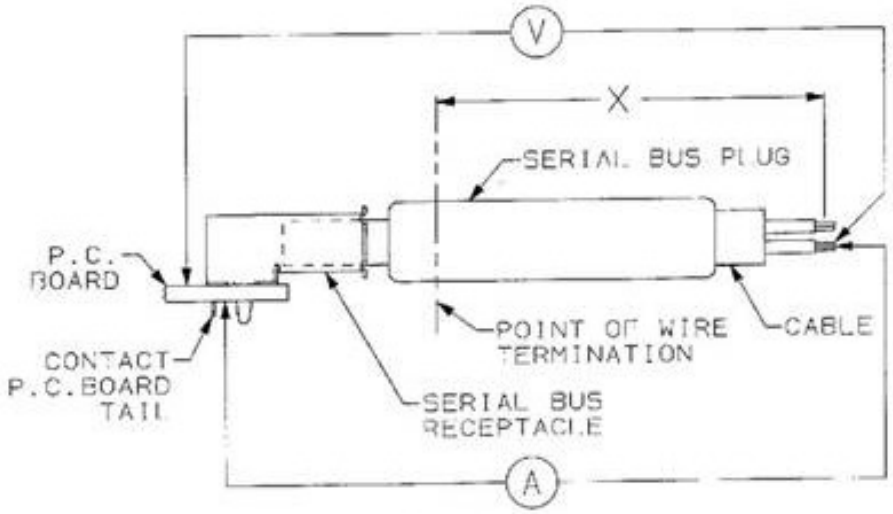


Figure 3
Termination Resistance Measurement Points

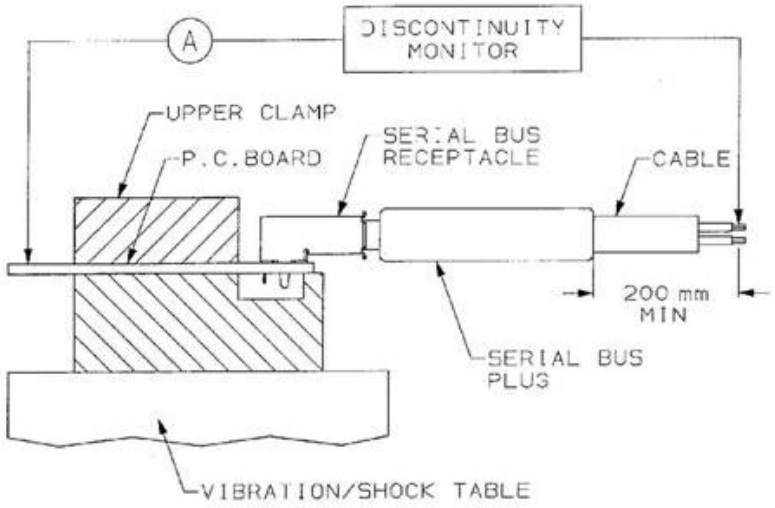


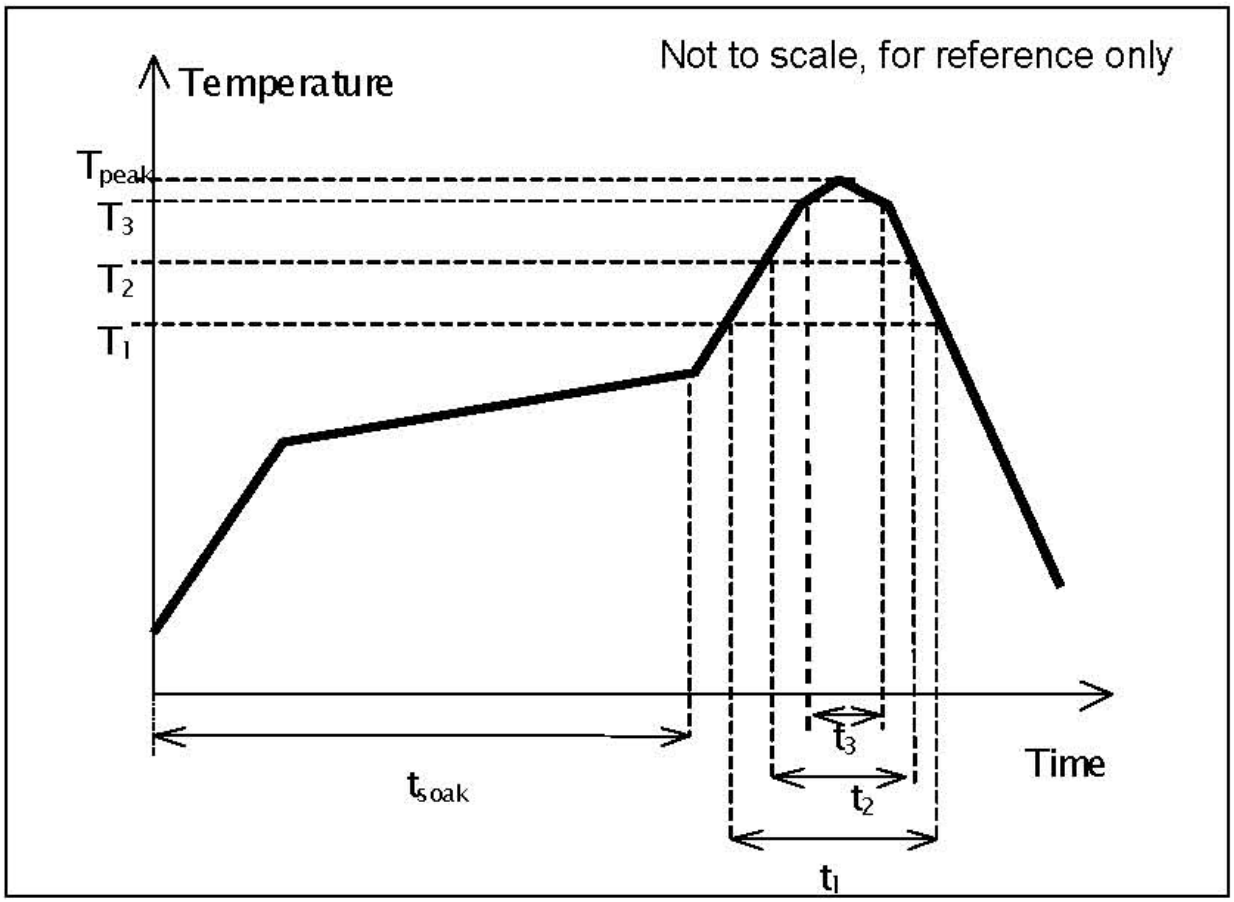
Figure 4
Vibration & Physical Shock Mounting Fixture

5.0 RE-FLOW CONDITION

Reflow soldering profile for soldering heat resistance testing

The reflow profile specified in this section describes expected maximum heat exposure of components during the reflow process of MP product PWBs. Temperature is measured on top of component. All components have to tolerate at least this profile two times (2x) for matte tin type and one times(1x) for black nickel type without affecting electrical performance, mechanical performance or reliability.

Pb-free reflow profile requirements for soldering heat resistance		
Parameter	Reference	Specification
Average temperature gradient in preheating		2.5°C/s
Soak time	tsoak	2-3minutes
Time above 217°C	t1	Max 60 s
Time above 230°C	t2	Max 50 s
Time above 250°C	t3	Max 10 s
Peak temperature in reflow	Tpeak	255°C(-0/+5°C)
Temperature gradient in cooling		Max -5°C/s



Reflow profile